ABSTRACT OF THE DISCLOSURE:

Time-based grooming and degrooming methods and systems of data units that utilize a common time reference is disclosed. Time is divided into a plurality of contiguous periodic time frames with a plurality of time frame durations. The system and method enable the grooming and switching of data units from a plurality of low speed links into one or more high-speed links. The system and method further enable the grooming and switching of data units from one or more high-speed links into a plurality of low speed links. The plurality of data units that are contained in each of the time frames are forwarded in a pipelined manner through the network switches. The system operates with high-speed wavelength division multiplexing (WDM) links, i.e., with multiple lambdas. The outcome of this method is called fractional lambda grooming.